

C1 consisting of up to 7.5% by weight of a reactive water-soluble epichlorohydrin polymer binder and from 0 to 8% by weight of starch.

C2 8. (AMENDED) The composition described in claim 1, comprising retention aid that promotes aggregation of said water soluble binder.

### REMARKS

Responsive to Advisory Actions of October 15, 2002 and September 12, 2002 and in further response to the Office Action of June 21, 2002, applicant has again amended claims 1 and 8. Amended claim 1 was submitted in Amendment C filed September <sup>#10</sup>24, 2002. Amended claim 8 was submitted in Amendment B filed August 23, <sup>#6</sup>2002. However, the Advisory Actions of October 15, 2002 and September 12, <sup>#8</sup>2002 indicated that neither amendment was entered because they both raised new issues. Presenting the amended claims in a CPA application should overcome that objection.

Claim 1 is the only independent claim. The foregoing amendment seeks to more fully define applicant's invention and to more clearly distinguish over the prior art. Applicant's invention is directed to an acoustical tile composition wherein the conventional starch binder is replaced, in whole or in part, by a polyamine epichlorohydrin resin wet strength resin. (See Specification page 5). The remaining components of the acoustical tile composition are more or less conventional components. The acoustical tile composition made with the polyamine epichlorohydrin resin binder can be dried faster than conventional

starch-binder acoustical tile compositions and therefore the acoustical tile composition made with the polyamine epichlorohydrin resin binder can produced more economically. (See specification page 7).

In the Office Action of June 21, 2002, the Examiner finally rejected all claims as being obvious under 35 USC § 103 based on US Patent 4,549,931 to Adamowicz in view <sup>#5</sup> of several secondary art references. The Adamowicz et al patent is directed to Inorganic Binders that "demands the presence of two basic materials" namely (a) a lithium and/or sodium water-swelling mica and (b) a source of organic polycations (See Col. 5, lines 44-53). The first basic material required in the Adamowicz et al binder is a specialized fluoride-containing material, namely a lithium and/or sodium water-swelling mica that is excluded from applicant's claims, as amended. Adamowicz et al prepare the binder by heating the lithium and/or sodium water-swelling mica ~~heating~~ for 4 hours at 700° C. (Col. 8 line 27-28). The heated specialized fluoride-containing lithium and/or sodium water-swelling mica reacts and functions as the binder.

The foregoing amendment to claim 1 revises the definition of the binder wherein the amendment replaces the open-ended term "comprising" with the more restrictive term "consisting of." It is submitted that this restrictive language excludes, from applicant's claimed binder, any components that function as a binder except for the reactive water-soluble epichlorohydrin polymer binder and possibly starch. Clearly, the restrictive language excludes the specialized

fluoride-containing material, namely a lithium and/or sodium water-swelling mica that functions as a binder as described by Adamowicz

Applicant has further revised the definition of the binder in Claim 1 so that the binder is defined as "consisting of up to 7.5 % by weight of a reactive water-soluble epichlorohydrin polymer binder and from 0 to 8% by weight of starch." Table 1, appearing at page 7 of applicant's specification shows the "Useable Range" for the epichlorohydrin resin binder as from 0 to 7.5% by weight. The same table shows the "Preferred Range" for Starch, the optional binder, to be from 0 to 8%. Thus the ranges of the binder components shown in amended claim 1 are clearly supported by Table 1.

The wet strength resins that may be used as binders in applicant's invention are discussed at pages 7-9 of applicant's specification. The preferred wet strength resin is a polyamine epichlorohydrin resin sold under the name Kymene 557H (see page 9), but other useable epichlorohydrin resins are disclosed as well. Accordingly it is submitted that the specification supports the use of "epichlorohydrin polymer" in the claims.

It is submitted that Claim 1, as amended, excludes any components that function as a binder except for the reactive water-soluble epichlorohydrin polymer binder and possibly starch. It follows that the restrictive language also excludes the specialized fluoride-containing material, namely a lithium and/or sodium water-swelling mica that has binder function according to Adamowicz.

Accordingly, It is submitted that claim 1, as amended, clearly distinguishes over Adamowicz and all of the other prior art.

Claim 8 requires the presence of a retention aid in the acoustical tile composition. Claim 8 has been amended to further define the function of the retention aid as "a retention aid that promotes aggregation of said water soluble binder." The use of a retention aid in the acoustical tile composition is deemed major improvement to applicant's invention because the invention is defined as "a composition for making acoustical tile in a water-felting process" wherein the principal binder is defined as "water-soluble."

In the Office Action of June 21, 2002, the Examiner cited US Patent, 5,395,571 to Symons to show that CMC is a well-known thickening agent that the Examiner asserted could be used as a retention aid. The Symons patent is directed to a composition for a foamed building board consisting primarily of calcium hemihydrate (i.e., stucco), a thermosetting resin, foam and other minor ingredients. Symons uses of sodium carboxymethyl cellulose as a retarder for the calcium hemihydrate in this setting composition. Symons does not cite the use of the sodium carboxymethyl cellulose as a thickener or as a retention aid because the production of the Symons foamed building board does not involve any dewatering step. Additionally, those skilled in the art would not use any thickening agent in a composition used in a water-felting process because a thickening agent would clearly interfere with dewatering process. Thus, the Symons patent, 5,395,571 relates to a building board that is totally unrelated to applicant's

invention. It is submitted that the amendment to claim 8 clarifies the function of the retention aid clearly distinguishes applicant's invention over the prior art.

It is submitted that all of the claims in issue are patentable over the prior art. Reconsideration of all grounds of rejection is respectfully requested in the light of the foregoing amendment and remarks and an early Notice of Allowance is solicited.

Respectfully submitted,

A handwritten signature in black ink, reading "Donald E. Egan", is written over a horizontal line.

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## Amended Claim 1 – Marked-up copy

1. (TWICE AMENDED) A composition suitable for making acoustical tiles in a water-felting process, said composition comprising a lightweight ~~mineral~~ aggregate, cellulosic fiber, a binder and, optionally, mineral wool, said binder consisting [essentially] of up to 7.5% by weight of a reactive water-soluble epichlorohydrin polymer binder and [optionally,] from 0 to 8% by weight of starch. *OK; table 1, p. 7*

8. (AMENDED) The composition described in claim 1, comprising retention aid that promotes aggregation of said water soluble binder.